

To Drill or Not to Drill

(learning, interpreting, analyzing, and presenting - Marcellus Shale)

Mission: Our community needs information on drilling in New York State, and you have offered to research this topic and its many facets, publicly presenting your findings to parents and community members in March during a project night at the SVE Middle School. This responsibility you have accepted hypothetically will drive the decision made not only locally but nationally on policies, practices, and procedures for future drilling in New York State and the entire United States. As you begin your pursuit of knowledge and truth, be sure to look through this packet to see some of the focus questions and ideas you should draw upon to further your study. Also be careful to anticipate bias in many of the articles and sources of your research. You will undoubtedly want to research multiple and varied resources to get as complete a picture as possible. Since this is such a multi-faceted project, a timeline is attached to give you general “on track” targets. A teacher mentor will also assist you when necessary to ensure you are having success and to share in your journey. Get ready to empower yourself on one of the hottest topics today!

Required Content: Each page goes into the specific details for each section of this project. These topics include areas from math, science, social studies, and English. Specifically rock formations, the history of drilling, other alternative fuel sources, the current state of our economy, our dependence on oil and gas, chemicals used, lasting effects, current laws, your rights, and economic stimulus to name a few. Pages attached will keep you on track and help you stay organized. Optional extra credit and creative pages such as food and slogan are included as well.

Grading: You will not receive a numerical grade on this project.. We will offer you support throughout the project, and your final assessment will be a self-assessment on how well you think you did. We are quite confident that you will make yourself proud throughout all your research, connections, applications of skills, and presentations. A rubric is attached that gives you a general guideline of the overall expectations we have for applicants/volunteers.

Timeline: At the top of each of the following brainstorming sections, you will have a place to put the due date for each assignment. Since much of this project will be done out of school, stay on task and ask for help when you need it. Make sure you are working a little each day/week. Periodically, progress checks will be given to ensure your success.

Resources: You may use any and all resources. We are asking you to research no fewer than ten different sources. Of these, at least five must be of varied formats: encyclopedia, magazine, journal, primary document, interview, etc. The internet and any textbooks/novels from the library will be quite helpful. Remember to document sources for your gathered information. Plagiarism is strictly forbidden. Be sure to put information in your own words and format giving credit to everyone’s ideas.

Questions: Any questions, comments, and concerns need to be brought up as they arise. Our presentation night for the community and our parents is tentatively scheduled for March. Your big decision right now is whether or not to accept this leadership role. Good Luck!

Explanation of Gas Drilling & Encompassing Topics/Vocabulary

- ⇒ - Cite all sources and material collected as your research progresses. Remember on the internet to look for .edu, .org, or .gov as a more valid source.
- ⇒ Must have a minimum of ten sources from at least five forms—article, magazine, encyclopedia, internet, newspaper, primary documents, people in the field, etc.
- ⇒ Define key terms and components that make your research understandable and clear as well as brainstorming the many subtopics that you feel surround the current issue.
- ⇒ Be careful of bias.

What is gas drilling? What are the issues surrounding gas drilling?

Key Words with a definition -

Cite your Sources

Signature of approval _____

Geology

Due Date:

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Investigate the major fossil fuels: coal, oil and natural gas.

How are fossil fuels “made”?

What is the difference in the formation of each of the three fossil fuels?

Where are the richest reserves of each of the three fossil fuels?

Print a world map and color code it with these reserves. Include a key.

Cite your Sources

Signature of
approval _____

Due Date:
/ /

Dependence

Measure our dependence on fossil fuel.

How much fossil fuel does America consume?

Find the volume of coal, oil, and gas used in the United States.

Report your statistics as rates over time.

How has our use of fossil fuel changed over time?

Present a line graph to show the trends in America's use of coal, oil, and natural gas.

Cite your Sources

Signature of
approval _____

Rock Formations

Due Date:

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Recall the Rock cycle and formation of the 3 kinds of rock: sedimentary, igneous and metamorphic.

What type of rock is shale?

How is shale formed?

What is special about the Marcellus shale?

Print a US map and indicate the region that the Marcellus Shale encompasses.

Does the Marcellus Shale differ from other Natural gas rich regions? How?

What is the local geographical area that contains the Marcellus Shale?

Cite your Sources

Signature of
approval _____

Removal Options

Due Date:

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-Consider the options for removing natural gas from beneath the shale.

What are the methods by which natural gas may be removed from beneath the surface of the earth?

Describe the processes.

How much does it cost to remove gas using these processes?

What harm to the environment can be expected

What harm to humans can be expected?

Do the benefits outweigh the risks?

Cite your Sources

Signature of
approval _____

Due Date:

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Food Recipe

Your food must following the criteria below.

Find and cite the source of your recipe

Research how your food grows and is processed.

Decide on the rationale for why you have chosen your food

Make sure you can find all of your ingredients

Keep your meal inexpensive

Try to cook a small portion of your food ahead of time - sample

Check with your teacher mentor to see if anyone else has chosen your food.

Cite your Sources

Signature of
approval _____

Fracking

Due Date:

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The term “fracking” has been used with much heated conversation in recent months. In New York, fracking is not yet permitted. But just south of New York, in Pennsylvania, fracking is being done daily.

What is fracking?

Define Fracking

Investigate the magnitude of this process.

Find statistics that reveal measurements regarding the following factors:

Water used

Ground disturbed

Transportation of materials

Jobs created

Money earned

What is the big deal?

What is this debate all about?

Identify the different perspectives in the argument. (Land owners, environmentalists, politicians, economists, etc)

What do the two sides want? Why?

Cite your Sources

Signature of
approval _____

Chemicals

Due Date:

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What are the chemicals that are used in fracking?

Research the chemicals used by major gas companies in fracking.

What are the most harmful chemicals?

What do the chemicals do to the environment?

What do the chemicals do to the human body?

What concentration or level of these chemicals would be considered dangerous?

Are there alternative options that companies might be able to use?

Are chemicals involved in all energy sources? Are there any comparisons...?

Cite your Sources

Signature of
approval _____

My Opinion

Due Date:

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What do you think?

If you were making the decisions, what would be your ruling? Should we allow fracking in New York?

Write a persuasive speech/essay in which you use your research to convince the audience your conclusion is the best.

Cite your Sources

Signature of
approval _____

Implications

Due Date:

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The increased interest in the extraction of natural gas in the US may be related to a desire to reduce the dependence on foreign oil.

Some alternative energy sources may be viable options for powering homes, cars and factories. What are some alternative energy sources?

By what process is the energy harnessed?

What are some arguments against the use of alternative energy sources?

What might be done to overcome the obstacles to using these fuels?

Is there any value in further investigating these energy options when the resources for natural gas are so readily available?

Cite your Sources

Signature of
approval _____

Laws & Rights

Due Date:

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What groups have organized to support and fight the drilling in the Marcellus Shale in New York State? (Property owners and environmental groups to name a few...)

How successful have they been?

Why has NY State established a moratorium on drilling?

How long is the moratorium in place for?

What revenues have communities in Pennsylvania generated from the drilling that is taking place in that state?

What other improvements has Pennsylvania benefited from because of the drilling?

What environmental problems have been created by the drilling?

What solutions have state and local governments come up with to resolve the environmental issues?

What are the rights of homeowners with respect to the natural gas that is under their property?

What are the current lease rates for homeowners?

What other types of controversies have been associated with the development of alternative energy sources in the Northern Tier of Pennsylvania and Southern Tier of New York? Solar energy, wind turbines, geothermal, and others.

What new laws have been created in NY State regarding drilling and fracking?

Cite your Sources

Signature of
approval _____

Self-Evaluation

Include the following topics, suggestions, questions, and ideas to evaluate yourself.

How much work did you do in and out of school?

How evenly was the work divided between yourself and your partner? (Only complete if applicable)

Did you stay focused in and out of class?

Did you keep on track with the time schedule?

What was your favorite part of the project?

What did you learn about yourself from this project?

What content did you learn and reinforce?

What skills did this project reinforce?

On a scale of 1-10, rate yourself and explain/justify your score.

What recommendations do you have to improve this project if we were to offer this again?

Include any other relevant feedback.

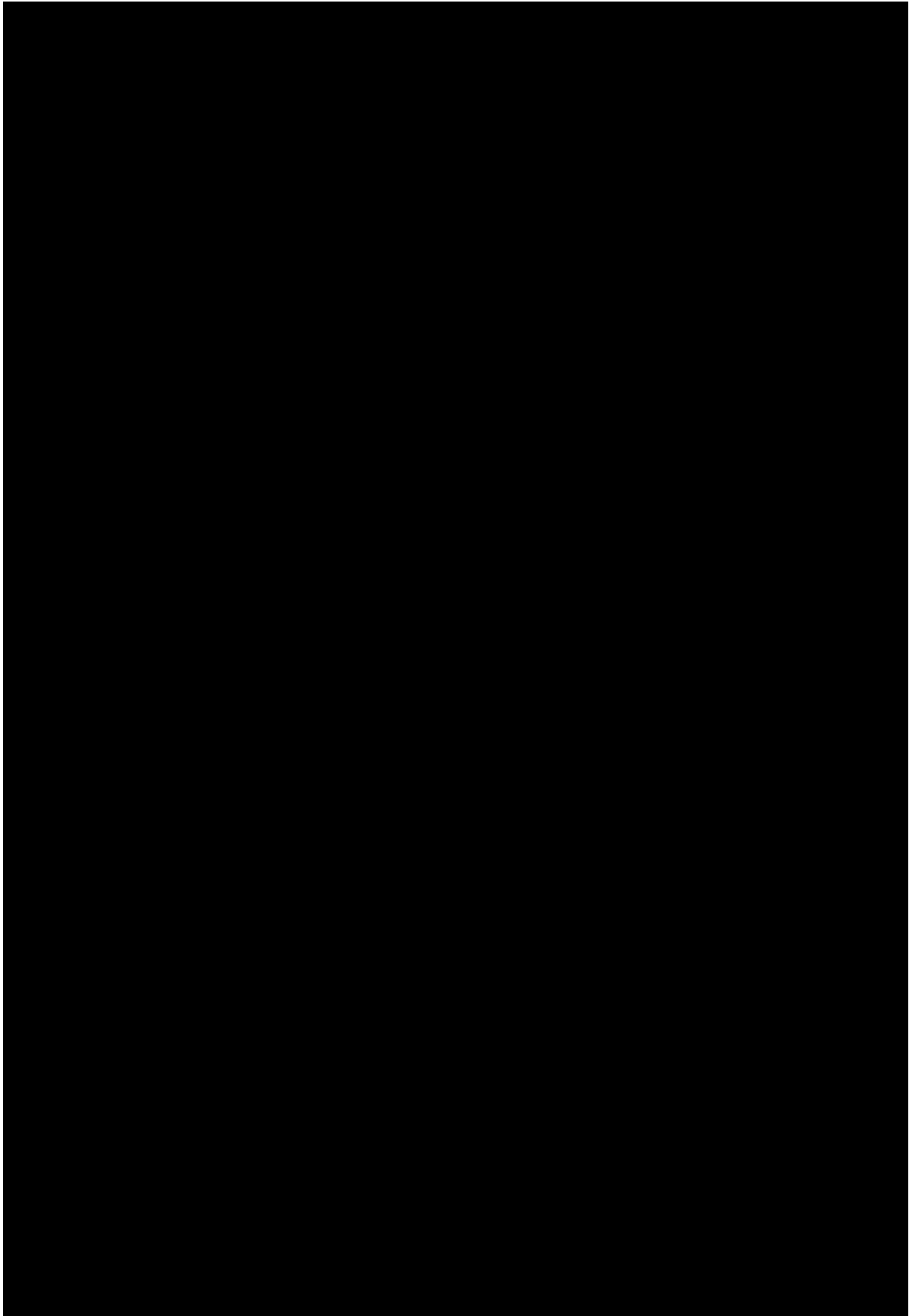
Cite your Sources

Signature of
approval _____

Timeline

Since this is our first time with this project, we will give you the earliest dates that any assignment will be due. It is imperative that you keep up. You must also have us check each section before your final copies. We may move the due date for each section to a later date, but we will never move them up. Good luck! Let us know if you are having any difficulties.

Project Rubric



Optional – Extra Credit Topics

If you discover additional topics as you are researching, please include on this page and discuss with your mentor.

Planning Board

Due Date:
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Name & Slogan

Create a catchy slogan, name, and possibly mascot to help people remember your skill and tips for fracking. Remember, you are helping the entire community learn!.